

City Sewer
Levels

9

TRANSIT.

F. B. 702

702

Table showing the difference of latitude and departure in running 80 chains at any course from 1 to 60 minutes.

Minutes.	Lks.	Minutes.	Lks.	Minutes.	Lks.
1	2½	21	49	41	95½
2	4½	22	51½	42	98
3	7	23	53½	43	100½
4	9½	24	56	44	102½
5	11½	25	58½	45	105
6	14	26	60½	46	107½
7	16½	27	63	47	109½
8	18½	28	65½	48	112
9	21	29	67½	49	114½
10	23½	30	70	50	116½
11	25½	31	72½	51	119
12	28	32	74½	52	121½
13	30½	33	77	53	123½
14	32½	34	79½	54	126
15	35	35	81½	55	128½
16	37½	36	84	56	130½
17	39½	37	86½	57	133
18	42	38	88½	58	135½
19	44½	39	91	59	137½
20	46½	40	93½	60	140

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EDWARD DENNY & CO.
DRAWING PAPER & MATERIAL, MATHEMATICAL INSTRUMENTS, ETC.
STATIONERS AND PRINTERS,
SAN FRANCISCO, CAL.

Table for Running on Slopes.

In the following table the first column shows the angle, the second, the number of links to be added to a chain on the slopes, to make one chain, horizontal measurement.

Angle.	Cor. in links	Angle.	Cor. in links.	Angle.	Cor. in links.	Angle.	Cor. in links
0		0		0		0	
4	0.24	11	1.88	18	5.14	25	10.54
5	0.38	12	2.24	19	5.76	26	11.26
6	0.55	13	2.63	20	6.42	27	12.24
7	0.76	14	3.06	21	7.11	28	13.37
8	0.98	15	3.53	22	7.85	29	14.34
9	1.24	16	4.02	23	8.64	30	15.47
10	1.55	17	4.56	24	9.47	35	22.07

L₁ + M.7th STREET July 11/21

STA	+	H.I.	-	E.L.
BM. 0.23		9.34		9.11
1			7.10	2.24
+50			6.50	2.84
2			6.12	3.22
+50			5.50	3.84
3			4.50	4.84
+40			3.79	5.55
0			3.35	5.99
+50			2.63	6.71
1#	9.43	17.08	1.69	7.65
+50			8.74	8.34
2			8.17	8.91
+50			7.60	9.48
3			6.69	10.39
+40			5.40	11.68
0			5.82	11.26
+50			5.18	11.90
1			4.71	12.37
+50			3.93	13.15
2			3.23	13.85
+50			2.55	14.53

Center of L. ST.

K. ST.

1

7th STREET July 11/47

STA.	+	H.I.	-	F.I.
3		17.08	1.55	15.53
+40			1.25	15.83
0			0.66	16.42
#	9.15	25.40	0.83	16.25
0+50			8.57	18.83
1			8.09	17.31
+50			7.65	17.75
2			7.20	18.20
+50			6.33	19.07
3			5.10	20.30
+40			5.57	19.83
0			5.37	20.03
+50			4.41	20.49
1			3.64	21.76
+60			2.34	23.06
2			1.27	24.13
+50#	7.44	32.26	0.58	24.82
3			6.53	25.73
BAA			6.85	25.41
+40				25.41
0				

J. ST.

I. ST.

H. ST.

7th STREET July 12/27

STA. +	H.I.	-	E.L.
BM 1093	36.34		25.41
+40		9.23	27.11
0		8.88	27.46
+60		7.89	28.51
1		7.01	29.34
+60		5.70	30.64
2		4.56	31.78
+60		3.25	33.09
3		2.10	34.24
+40		1.43	34.91
0# 8.93	44.47	0.80	35.54
+50		4.83	36.64
1		6.78	37.69
+50		5.58	38.89
2		4.49	39.98
+50		3.86	41.11
3		3.11	41.96
+40	Plug gone		
0# 5.95	47.77	2.65	41.82
+50		5.11	42.66
1		5.43	42.34

H Street

G Street

F Street

H To
S. M. 7th

S.T. July 12/87

Δ	+	H.I.	-	E.L.
+50		47.77	5.18	42.59
2			4.87	42.90
+50			4.19	43.58
3			2.78	44.99
+40			2.53	45.24
0			2.06	45.71
H/M #8,30	53.80	2.23	45.54	45.50
+50			7.31	46.49
1			6.32	47.48
+50			5.26	48.54
2			4.11	49.69
+50			3.40	50.40
3			1.22	52.58
+40 #7,5-6	61.22	0.13	53.67	
0			7.60	53.62
+50			6.51	54.71
1			5.50	55.72
+50			4.88	56.34
2			3.75	57.47
+50			2.61	58.61
3	4.33	63.28	2.27	58.95

E. Street.

D. Street.

H.L.
S.M.

7th STREET. July 12/87

Δ	+	H.I.	-	E.L.
3+40		63.28	4.75	58.53
0			4.74	58.54
+50			4.81	58.47
1			4.62	58.66
+50			5.31	57.97
2			5.34	57.94
+50			5.25	58.03
3			4.48	58.85
+40			4.49	58.79
0			3.65	59.63
+25			8.49	54.79
+50 [#]	12.27	72.50	3.05	60.23
1 [#]	11.52	82.72	1.30	71.20
+50 [#]	11.55	94.22	0.05	82.67
2			6.81	87.41
+50 [#]	11.07	102.47	2.82	91.60
3			7.57	94.90
+40			5.28	97.19
0			4.23	98.24
0+50 [#]	11.87	112.95	1.39	101.08

C. STREET.

B. STREET.

0 45 450

A. ST

Hatch
S.M.

7th ST

July 12/28

6

Δ	+	H.I.	-	E.L.	
1		112.95	7.15	105.80	
#	11.82	124.66	0.11	112.84	
+50			11.86	113.90	
2			5.68	119.03	
#	11.13	135.49	0.30	124.36	
+50			9.45	126.04	
3			2.53	132.96	
#	12.02	147.91	0.20	135.29	
B.M.			4.82	142.49	142.57
+40			11.08	136.23	
0			7.94	139.37	
+50			4.84	142.47	
1			2.23	145.08	
#	11.63	158.47	0.47	146.88	
+50			11.29	147.18	
2			9.69	148.84	
+50			8.08	150.39	
3			6.43	152.04	
+40			4.47	154.00	
B.M.			2.33	156.14	156.33
0			2.71	155.76	

Ash ST.

Beech ST.

H.L

D.M.

7th STREET. 12/877th Street

Δ	+	H.I	-	E.L.
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0450#	12.10	158.47	0.85	157.62	
1		169.72	10.27	159.45	
+50			9.59	160.19	
2			8.47	161.25	
+50			6.69	163.03	
3			6.39	163.83	
+40			7.27	162.45	
0			8.43	161.29	
B.M.			1.94	168.38	168.49
+50#	1.40	160.90	10.22	159.50	
1			4.40	156.50	
+50			3.82	157.08	
2			3.45	157.45	
+50			3.07	157.83	
3			3.61	157.29	
+4#	2.24	157.06	6.08	152.82	
#	0.04	145.25	11.85	145.21	
B.M.			11.12	134.13	134.19

Cedar. ST.

Date. street.

H.L.
D.C.M.

8th
11

Street Only 13/19

8

Sta + HI - E.L.

Sta	+	HI	-	E.L.
B.M.	4.05	9.42		5.37
3+40			5.71	3.71
0			5.96	3.46
+50			4.30	5.12
1			3.94	5.48
+5#	6.87	13.89	2.40	7.02
2			7.08	6.81
+50			6.38	7.51
3			5.96	7.93
+40			5.77	8.12
0			4.92	8.97
+50			4.32	9.57
1			3.49	10.40
+50			3.00	10.89
2			2.27	11.62
+50			1.52	12.37
3#	10.45	23.77	0.57	13.32
+40			9.04	14.73
0			9.77	14.00
+60			8.72	15.05
1			7.90	15.87

M ST.

L. ST.

K ST.

H. L.
D. G. M. 8th Street July 13/97

9

Sta	+	H.S.	-	E.L.
1+50		23.77	7.11	16.66
2			6.53	17.24
+50			5.63	18.14
3			5.04	18.73
B.M.			5.42	18.35 18.35
+40			4.80	18.97
0			4.36	19.41
+50			3.95	19.82
1			3.27	20.50
+50			2.39	21.58
2			1.64	22.13
+50 #	7.74	30.41	1.10	22.67
3			7.00	23.41
B.M.			7.64	22.77 22.75
+40			7.13	23.28
0			6.42	23.98
+50			6.13	24.28
1			5.26	25.15
+50			4.24	26.17
2			3.25	27.16
+50			2.42	27.99

J. ST.

I. ST.

H.L.
S.C.M.8th
" "

Street July 13/60

Sta	+	H.A.	-	El.	B.R.
3		30.41	2.05	28.36	
+40#	7.40	37.11	0.70	29.71	
0			7.06	30.05	
B.M.			4.80	32.31	32.27
+50			6.35	30.76	
1			5.35	31.76	
+50			4.84	32.27	
2			3.74	33.37	
+50			2.25	34.86	
3 #	10.76	47.19	0.68	36.43	
+40			9.36	37.83	
0			8.04	39.15	
+50			6.52	40.67	
1			5.54	41.65	
+50			4.73	42.46	
2			4.59	42.60	
+50			5.35	41.84	
3			5.00	42.19	
B.M.			4.65	42.54	42.50
+40		Plug gone			
0 #	7.87	51.60	3.46	43.73	

H. ST.

G. ST.

F. ST.

H.L.
S.M. 8th Street July 13/78

Sta	+	H.P.	-	El.	B.R.
0+50		51.60	6.78	44.82	
1			5.91	45.69	
+50			5.32	46.28	
2			4.91	46.69	
+50			4.37	47.23	
3 #	8.05		3.46	48.14	
B.M.		56.19	2.28	49.32	49.22
+40			6.95	49.24	
0			6.18	50.01	
+50			5.55	50.64	
1			5.05	51.14	
+50			4.61	51.58	
2			2.83	53.36	
+50			2.20	53.99	
3 #	7.28	62.52	0.95	55.24	
+40			5.87	56.65	
0			6.18	56.34	
B.M.			5.73	56.79	56.77
+50			5.43	57.09	
1			4.15	58.37	
+50			3.14	59.89	

E. ST.

D. ST.

H. La.
 D.M. 8th Street July 13/78

Sta	+	H.A.	-	El.	B.R.
2		62.52	1.85	60.87	
+50#	3.31	65.36	0.47	62.05	
3			2.05	63.31	
+40			2.58	62.78	
0			3.60	61.76	
+50			4.95	60.41	
1			5.16	60.20	
+50			4.90	60.46	
2			4.67	60.69	
+50			4.38	60.98	
3			3.42	61.94	
B.M.#	5.94	67.62	3.70	61.66	61.66
+40			5.27	62.35	
0			5.34	62.28	
+50			5.00	62.62	
1			6.13	61.49	
+50			10.13	57.5	
+30			2.71	64.91	
#	11.50	78.37	0.75	66.87	
2			4.77	79.60	
#	10.31	88.52	0.16	78.21	

C. ST.

H. ST.

Dry creek

H.L.
I.M.

8th Street - July 12/87

Sta	+	H.A.	-	El.	B.B.
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		88.52			
#	10.99	99.42	0.09	88.43	
+50#	11.64	101.81	9.25	90.17	
	11.80	113.06	0.55	101.26	
3			9.14	103.92	
B.M.			1.22	111.84	111.84
+40			6.23	106.83	
0			5.03	108.03	
#	11.57	124.40	0.23	112.83	
+50			10.09	114.36	
1			1.24	123.12	
#	12.33	136.71	0.02	124.38	
+50			6.43	130.28	
2			2.57	134.21	
+50			2.04	134.67	
3			2.97	133.74	
+40#	8.28	143.21	1.74	134.93	
B.M.			0.72	142.49	142.49
0			9.98	133.23	
+50#	2.10	134.31	11.00	132.21	
1			6.87	127.94	

A. ST.

A sh. pt.

H.L.
L.M. 8th Street July 12th 187

Sta	+	H.I.	-	El.
1+50		134.31	7.52	126.59
2			6.61	127.70
+50			4.13	130.18
#	11.91	145.30	0.92	133.39
3			9.64	135.66
B.M.			4.73	140.57
+40			6.87	138.43
0			5.65	139.85
+50			2.42	142.88
#	12.25	156.95	0.60	144.70
1			10.80	146.15
+50			7.86	149.09
2			4.25	152.70
+50			1.04	155.91
3 #	10.90	167.52	0.33	156.62
B.M.			6.70	160.82
+40			10.25	157.27
0			9.81	157.71
+50			8.87	158.65
1			7.26	160.26
+50			6.09	161.43

Beech. st.

Cedar. st.

H.L.

D.M.

8th Street July 14/87

Sta. + H.J. - C.L. B.B.

2	167.52	4.30	163.22
+50		9.72	163.80
3		3.30	164.22
		2.50	165.02

9th Street July 14/87

Sta.	+	H.S.	-	Elev
B.M.	3.24	8.61		5.87
3			7.26	1.95
+40			6.83	1.78
0			6.41	2.20
+50			5.78	2.69
1			5.37	3.24
+50			4.45	4.16
2			4.50	4.11
+50			4.28	4.93
3			3.66	4.95
+40			3.07	5.54
0			2.76	5.85
+50			2.38	6.23
1#	7.00	14.26	1.35	7.26
+50			6.10	8.16
2#	5.18	14.25	5.19	9.07
+50			4.97	9.28
3			3.93	10.32
+40			3.06	11.19
0			2.50	11.75
B.M.#	7.05	18.82	2.46	11.79

N. ST.

M. ST.

L. ST.

9th Street - July 14/27

Sta	+	H.A.	-	Elev	
0+50		18.84	6.06	12.78	
1			5.62	13.22	
+50			5.32	13.52	
2			4.16	14.68	
+50			3.15	15.69	
3			2.26	16.58	
+40			1.27	17.57	
0			1.20	17.64	
+50#	6.88	24.89	0.83	18.01	
1			6.13	18.76	
+50			5.22	19.67	
2			4.80	20.09	
+50			4.08	20.81	
3			3.26	21.63	
+40			2.73	22.16	
0			1.57	23.32	
H.M.			1.47	23.42	23.42
+50#	6.81	31.10	0.60	24.29	
1			6.12	24.98	
+50			5.27	25.83	
2			4.81	26.29	

K. ST.

J. ST.

9th Street July 14/87

Sta.	+	H.A.	-	Elev.	B.B.
2+50		31.10	3.98	27.12	
3			2.95	29.15	
+40			2.90	29.20	
0			2.83	28.77	
+50#	6.85	36.04	1.91	29.19	
1			6.53	29.51	
+50			5.95	30.09	
2			5.08	30.96	
+50			4.53	31.51	
3			3.78	32.26	
+50			2.23	33.81	
0			2.40	33.64	
B.M.			2.86	33.19	33.17
+50	9.10	44.90	0.24	35.80	
1			7.45	37.45	
+50			5.78	39.12	
2			4.83	40.07	
+50			3.91	40.99	
3			2.71	41.19	
+40			1.80	43.10	
0#	7.15	51.48	0.57	44.33	

II. ST.

89.15
 9.95
 29.20

III. ST.

G. ST.

9th Street July 14/87

Sta + H.I. - E Lev. R.B.

0+50		51.48	6.17	45.31	
1			4.98	46.50	
+50			4.83	46.65	
2			3.84	47.60	
2+50			2.81	48.67	
3			2.23	49.25	
+40		No Plug			
0 #	7.07	58.04	0.51	50.97	
B.M.			7.47	50.57	50.58
+50			6.97	51.07	
1			6.44	51.60	
+50			5.67	52.37	
2			4.14	53.90	
+50			3.00	55.04	
3			1.75	56.29	
+40			0.79	57.25	
0 #	6.34	64.08	0.30	57.74	
+50			5.83	58.25	
1			5.96	58.12	
+50			5.71	58.37	
2			4.69	59.39	

F. ST.

E. ST.

9th Street - July 14th 1928

Sta	+	H.S.	-	Elev. July 14/28
2+60		64.08	4.26	59.82
3			3.77	60.31
+40			2.58	61.50
0 #	6.93	67.66	3.35	60.73
B.M.			4.54	63.12 63.08
+50			6.87	60.79
1			6.08	61.63
+50			5.48	62.18
2			4.94	62.72
+50			4.17	63.49
3			2.38	65.28
+40			1.57	66.09
0 #	6.55	73.50	0.71	66.95
+50			6.19	67.31
1			5.55	67.95
+50			4.96	68.54
2			5.00	68.50
+50			5.74	67.76
3			7.43	66.07
+40			8.67	64.83
0			8.38	65.12

D. ST.

C. ST.

B. ST.

H. L.
+ L. M.

9th Street 15/194

21

Sta.	+	H.S.	-	Elev.
B.M.		73.50	8.08	65.42 65.40
#	7.83	73.23		65.40
0+50			8.26	64.97
+60			13.49	69.74
1			7.96	65.27
+50			7.43	65.80
2			6.87	66.36
+50			5.27	67.96
3 #	11.45	83.98	0.70	72.53
+40			3.85	80.13
#	11.39	95.27	0.10	83.88
B.M.			9.30	85.97 86.03
0			8.46	86.81
#	12.38	107.28	0.37	94.90
0+50			11.55	95.83
1			4.06	103.22
+50			1.52	105.76
2			1.57	105.71
+50			1.40	105.88
3			2.01	105.27
3+40			3.30	103.98

Dry creek 4+10 Bottom

A. ST

Ash. ST

H.L.
S.M.

9th Street July 15/87

22

Sta.	+	H.S.	-	Elev.
0		107.28		
0#	9.78	116.64	0.42	106.86
+50			6.98	109.66
1			6.40	110.24
+50			4.72	111.92
2			4.85	112.29
+50			8.58	108.06
3			2.18	114.46
1#	11.89	128.52	0.01	116.63
3+40			9.17	119.35
0			5.88	123.14
H.W.			4.88	123.84
#	11.16	139.68	.00	128.52
0+50			10.64	129.04
1			7.95	131.73
+50			3.77	135.91
#	11.88	151.56	.00	139.68
2			10.88	140.68
+50			5.78	145.78
3			2.02	149.54
#	5.97	157.34	0.19	151.37

Beech. St.

Cedar St.

H.L.
L.M.

9th Street June 15 1887

23

Sta.	+	H.I.	-	Elev	
3+40		157.34	5.69	151.65	
B.M.			6.09	151.25	151.28
0			4.50	152.84	
+50			2.02	155.32	
1			3.40	154.94	
+50			7.49	149.85	
2			8.50	148.84	
+50			7.20	150.14	
8 #	8.77	164.30	1.81	155.59	
+40			3.43	160.87	

Cedar st.

Date st.

10th Street July 16th 1917

Sta	+	H.S.	-	Elev
EM.	1.38	6.75	0.72	5.37
8 th + M. #	2.28	8.26		6.03 5.37
3.40			4.65	3.61
0			3.75	4.51
+50			4.43	3.83
1			4.93	3.93
+10			4.64	3.62
2 #	7.74	11.99	4.01	4.25
+50			6.91	5.08
3			6.11	5.88
+40			5.56	6.43
0			4.82	7.17
+50			3.76	8.21
1			2.93	9.06
+50			1.87	10.12
2 #	7.29	18.18	1.10	10.89
+50			6.67	11.51
3			5.97	12.21
+40+			5.00	13.18
0			3.87	14.31
+50			2.83	15.35
1			2.27	15.91

N. ST.

M. ST.

L. ST.

15th Street July 16/87

Sta	+	H. S.	-	Elev.
1+50		18.18	1.47	16.71
2 #	7.58	24.77	0.99	17.19
+50			6.87	17.90
3			6.04	18.73
+40			4.96	19.81
0			5.11	19.66
B.M.			4.92	19.85 19.81
+50			4.29	20.48
1			3.32	21.45
+50			2.24	22.53
2 #	6.35	30.09	1.03	23.74
+50			5.36	24.73
3			4.52	25.57
+40			3.66	26.43
0			2.97	27.12
B.M.			6.67	23.42 23.42
+60			2.22	27.87
1 #	9.94	39.15	0.89	29.21
+50			8.94	30.77
2			7.27	31.88
+50			6.88	32.77

K. ST

J. ST

Cor 9th + J.

H.L.

58m

10th Street July 16/87

26

Sta.	+	H.P.	-	Elev.
3		39.15	4.72	34.43
+40			4.28	34.87
0			4.13	35.02
B.M.			2.03	37.12 37.07
+50			4.98	34.17
1			4.44	34.71
+50			4.18	34.97
2 #	7.28	43.17	3.26	35.89
+50			6.14	37.03
3			5.22	37.95
+40			3.90	39.27
0			3.98	39.19
B.M.			B gone	39.70
+50			1.88	41.34
1			1.52	41.65
+50			1.09	42.08
2 //	8.70	51.37	0.60	42.67
+50			10.13	41.24
3			8.73	42.64
+40			6.98	44.99
0			4.93	46.44

I. ST.

Checked a Plug 3+50 9th + 7th # 6l 29.19
 Rnd 9.94 = 29.20

H. ST.

G. ST.

H.S.
26m 10th Street July 16/27

Sta.	+	H.P.	-	Elev.
0+50		51.87	3.93	47.44
1			3.84	47.99
+50			2.81	49.06
2#	8.07	58.50	0.94	50.48
+50			8.33	50.17
3			7.74	50.76
+40		No Plug Reading		
0			5.66	52.84
B.M.			4.72	53.78 53.73
+50			4.23	54.27
1			2.90	55.60
+50#	7.96	65.63	0.83	57.67
2			7.00	58.63
+50			6.38	59.25
3			5.46	60.17
+40			4.73	60.90
0			3.48	62.15
+50			2.19	63.44
1#	6.70	71.96	0.37	65.26
+50			5.80	66.16
2			5.01	66.95

F. ST.

Check on 11th E. 56.95 B.M. 56.93

E. ST.

H.S.
2.6 m.

10th Street July 16/87

Sta	+	H.A.	-	Elev
2+50		71.96	4.27	67.69
3			4.40	67.56
+40			4.46	67.50
1			3.92	68.04
BM	2.75	74.13	0.57	71.39
+50			5.12	69.01
1			4.69	69.50
+50			4.70	69.43
2			4.29	69.90
+50			2.95	71.18
3			1.97	72.16
+40			1.64	72.49
0			1.35	72.78
+60			0.89	73.24
1			0.90	73.23
+50#	5.59	79.22	0.50	73.63
BM			2.67	76.55
2			5.32	73.90
+50			4.73	74.49
3			3.76	75.46
+40			5.75	73.47

D. ST

C. ST

S.E. cor. C + 10th

B. ST

#J.
28m. 10th Street - July 16/87

Sta	+	H.S.	-	Elev
0		79.22	7.67	71.55
+50			8.43	70.79
1 #	4.54	73.66	11.10	69.12
+50			6.03	67.63
2			5.67	67.99
+50			4.98	68.73
3			4.64	69.02
+40	July 18/78		4.94	68.72
B.M.			3.59	70.07 70.08
0			7.92	65.00
+50			6.00	61.60
1			2.00	71.23
+50	11.65	82.46	1.75	71.71
2			1.00	72.63
+50			9.71	73.69
3			7.85	75.61
+40			5.49	77.57
B.M.			5.95	77.51 77.59
0			8.80	77.61
+50	10.00	95.90	6.23	79.23
1			4.29	77.47

A. ST.

A. ST.
Center of Ash

H.S.
L.M. 10th Street July 18/27

Sta	+	H.S.	-	Elev
#	116.4	104.90	9.52	98.26
+50				98.26
2#	7.17	111.61		
+50				
3				
+40				
B				107.64
0				
+50				
#	112.0	128.64		
1				
+50#				
2				
+50				
3				
B.M.			8.50	137.12

Bench pt.

H.L.
H.H. 10 St July 18

Sta + H.P. - Elev B.R.

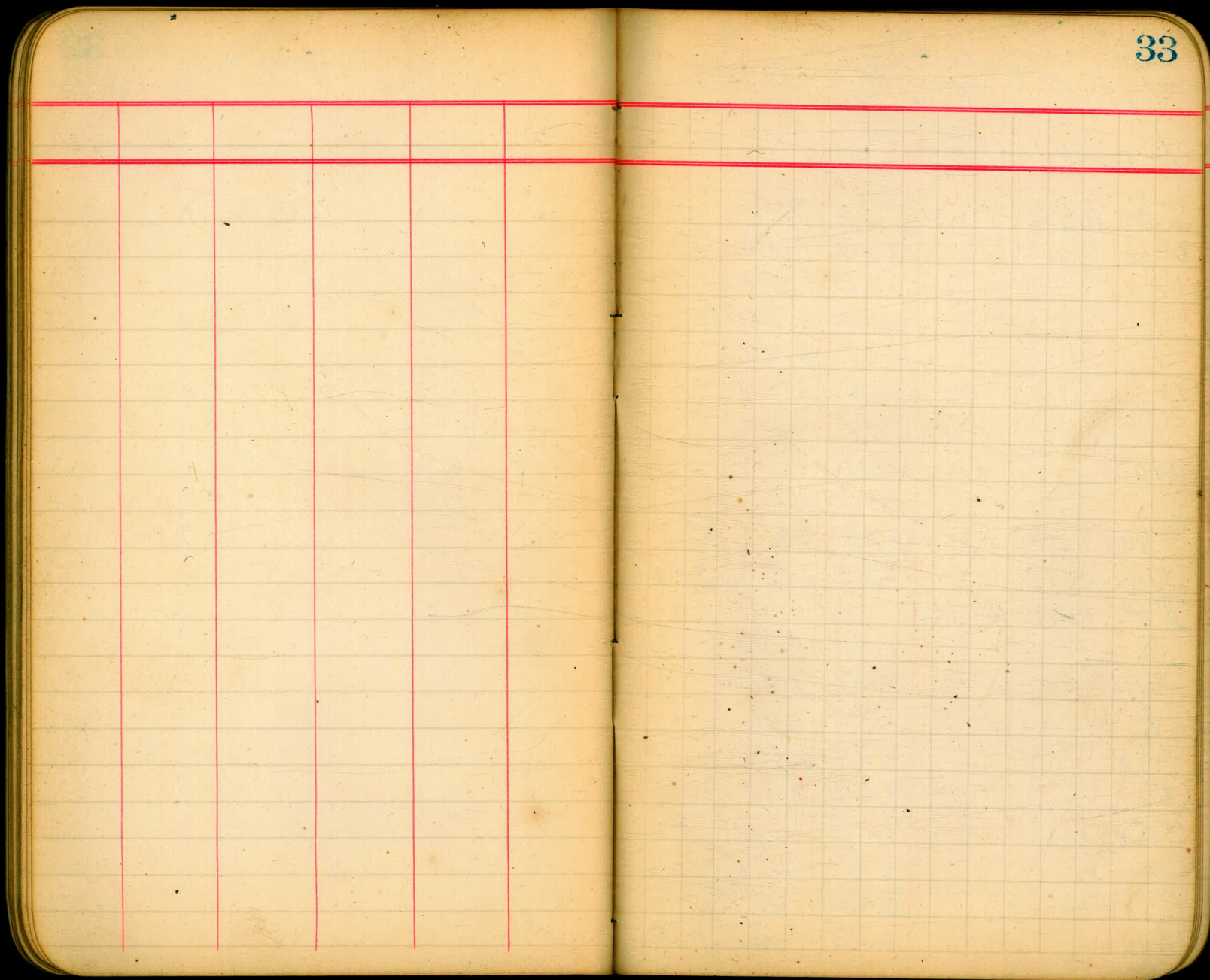
70.08

St 40	6.90	76.98	8.25	69.73
1			10.63	66.35
+50			8.51	68.67
2			5.75	71.29
+50			3.26	73.72
TP	11.15	85.27		

St 40	11.30	88.90		77.60
0			3.27	79.63
+50			5.64	80.26
TP	0.53			88.67
TP	11.50	100.58		

10 m July 21 1885
H.H.

32



H.L. July 18, 1887.
H.H.

Δ	+	HT	-	Cl	B.O.
Bm	4.50	8.65		4.15	
+50			7.07	1.58	
0			6.96	1.69	
+50			5.36	3.29	
1			4.69	4.96	
1+50			3.95	4.70	
2			3.07	5.58	
2+50			2.66	5.99	
3			2.06	6.59	
3+40			2.24	6.41	
Bm			0.83	7.82	7.62
TP	4.23	12.05			
0			4.81	7.24	
+50			4.48	7.57	
1			4.30	7.75	
+50			4.54	7.51	
2			4.63	7.42	
+50			4.45	7.60	
3			4.17	7.88	
7 40			3.63	8.42	
Bm			2.78	9.27	9.29

H.L. July 18, 1887
H.H.

34

H. St & INDIA St.

G. St. & INDIA St

H. & INDIA St

H. B. L.
H. H. July 14 1887

	Δ	+	H I	-	BB	BB
TP	5.70		14.12	-	8.42	
0				5.66	8.96	
+50				4.76	9.36	
1				4.65	9.47	
+50				4.53	9.59	
2				4.49	9.63	
TP	5.28		14.91	.91		
2+50				5.38	9.58	
3				5.37	9.54	
+40				5.41	9.50	
0				5.02	9.89	
BOn				4.86	10.05	
+50				4.80	10.11	
1				6.06	9.85	
+50				4.15	9.76	
2				3.96	10.95	
TP	6.69		17.64			
+50				6.25	11.99	
0				4.95	12.69	
+50 1/2				4.15	13.49	
BOn				3.51	14.13	14.16

INDIA S 2

INDIA S 2

H. L. July 18, 1887
 H. H.

36

Δ	+	HI	-	EL	BB
0		17.64	3.65	13.99	
1			2.57	15.07	
+50			1.97	15.67	
2			2.18	15.46	
TP	6.04	21.50			
2+50			5.60	15.90	
3			5.06	16.44	
3+45			4.92	16.58	
0			5.12	16.38	
+50			5.15	16.35	
1			5.57	15.93	
+50			5.87	15.63	
2			5.83	15.67	
TP	4.70	20.37			
+50			4.73	15.64	
3			5.00	15.37	
+40			5.91	14.46	
0			4.80	15.57	
+50			5.34	15.03	

C & TNDIA S 2

B & TNDIA S 2

H.L. July 18 1889
H.H.

37

Δ	+	Hi	-	Elc	BB
		20.97		16.03	
1			4.86	15.57	
+50			9.97	17.00	
2			2.60	17.77	
TP	7.19	24.90			
+50			6.56	18.54	
3			5.88	19.02	
+40			5.08	19.82	
BM			4.36	20.54	20.58
0			4.45	20.45	
+50			3.43	21.47	
7			3.33	21.57	
+50			3.27	21.63	
2			2.55	22.55	
TP	6.78	29.33			
+50			6.56	22.77	23.27
3			6.43	22.90	
BM			6.10	23.23	23.27
+40			4.45	24.88	
0			3.55	25.68	
+50			2.96	26.35	

ASH & INDIA STS.

ASH & INDIA

ASH & INDIA

July 18, 1887.

Δ	+	HT	-	Eber	BB
		22.00			
1			0.97	24.36	
1+50			0.23	29.10	
77	8.17	87.27			
2			8.02	29.25	
168			7.17	30.16	
3			5.65	31.62	
3+40			5.06	32.19	
B.M.			2.64	34.63	34.67

B.M. July 19 1957

H.H.

39

Δ	+	Hi.	-	Hi. Le	BB
B.M.				743	
T.P.	0.865	8.295			
B.M.#	2.905	6.188	5.0125	3.282	
#	4.746	5.219	5.715	0.473	
B.M.#	3.873	5.162	3.730	1.489	100
B.M. check			1.510	3.709	3.67
B.M.#	5.580	8.955	1.786	3.376	
B.M. check			0.80	4.362	4.33
B.M.#	6.660	13.357	2.265	6.691	
B.M.#	9.175	21.611	0.915	12.436	
B.M. check			0.220	21.397	21.40
B.M.#	10.044	27.924	4.331	17.280	
B.M.#	9.869	34.843	2.510	25.014	
B.M.#	8.317	40.911	0.289	34.594	
T.P.	6.716	46.268	1.968	39.552	
B.M.			4.640	41.628	
B.M. check			6.250	40.038	40.00
B.M.#	1.760	46.898	1.130	46.108	
B.M. check			2.100	43.798	43.76
B.M. check			5.020	43.878	43.88
T.P.	5.412	49.070	3.240	43.668	

S.B. 5 & K initial bench

4th & K S.W. cor spike in post

3rd & K S.E. spike in cor of
Wash house ten feet E of

3rd & J Bolt in E side of Hydrant

3rd & I S.W. spike in cor building

3rd & H, N, E spike in tel. pole
fence in

3rd & G S.W. cor iron pins in fence

5th & F S.W. cor side walk sign post

3rd & D Street

B.M. July 20 187

HH

A	+	HI	-	Ele	BB
		49.070			
BM			2.265	46.805	
TF	11.912	59.451	1.531	47.539	
TF	7.468	66.059	0.860	58.591	
BM			4.945	61.114	
BM	check		2.53	63.529	
BM	"		3.885	62.174	
#	10.704	76.000	0.763	65.296	
BM	check		0.392	75.608	75.57
BM#	10.387	80.842	5.745	70.255	
#	9.934	90.054	0.722	80.120	
#	10.099	99.405	0.748	89.306	
BM			8.315	91.090	
#	10.980	109.680	0.705	98.700	
BM#	7.523	116.753	0.450	109.230	
BM#	11.930	122.474	6.209	110.544	
#	11.965	133.599	0.840	121.634	
#	11.379	144.226	8.752	132.847	
BM#	11.766	154.834	1.158	143.068	
#	12.55	166.019	0.815	154.019	
BM			0.832	165.187	

3 & Ash. S.W. bolt six in from cor.

3 & Beech N.E. spike in post.

3 & Cedar S.E. spike in tel. pole.

3 & Sate. S.W. spike in tree 50' S of lot.

3 & Elm N.E. S side of lower step of South West Institute.

3 & Fir N.E. bolt 6" from cor.

L.M. July 20. 1887
H.H.

Δ	+	HI	-	Elev	B.B.
BM#11.594	176.781			165.187	
#	10.850	186.886	0.775	176.006	
BM			3.085	188.821	185.76
#	2.592	188.576	0.822	186.084	
#	0.891	177.806	11.661	176.915	
BM#10.268	176.800		11.274	166.582	
BM	check		1.808	174.797	174.95
BM#10.554	184.655		2.979	173.821	
#	11.963	195.699	0.919	183.786	
#	11.618	206.606	0.711	194.988	
BM			2.296	204.310	

3 & Grape N.W. spike in cor post.

3 & Hawthorn S.E. Pin 6" from Bear.

3 & Ivy Pin four feet E of centre.

3 & Juniper NE Pin 8" from B. cor.

Am July 21 1885

	Δ	+	H1	-	Elev	B.B
					795	
BM# 3835	11.265					
# 3997	13.382	1.880	9.886			
PM		1.890	11.492			
BM# 2626	7.472	8.436	4.946			
BM# check		4.099	9.878	3.376		
# 3430	6.403					
BM# 4.166	8.811	2.158	4.645			
BM# 7.121	14.034	1.894	6.913			
BM# 2.002	13.467	2.569	11.465			
DM		7.718	5.749			
BM# 4.407	15.262	2.636	10.831			
BM# 3.381	13.191	5.452	9.810			
DM check		2.93	12.33	12.29		
BM# 2.581	9.812	5.960	7.231			
BM# 2.645	6.356	8.101	9.711			
DM check		2.198	4.158	4.16		
BM# 3.184	5.348	4.152	2.204			
BM# 3.164	4.309	6.247	-0.859			
BM check		2.22	2.08	2.10		
BM		3.584	-1.275	-1.275		

58 & J S.W. end of bridge of bridge ^{ant.}
 48 & J.N.W. spike in tel pole.

2 & J.N.W. spike in tel pole.
 2 & I S.W. spike in tel pole.
 1 & I N.E. end of bridge of bridge
 1 & I S.E. spike in ^{front} of building
 1 & I S.W. spike in tel pole
 1 & I S.W. spike in tel pole
 1 & I S.W. spike in tel pole

Columbia & H S.W. spike in tel pole.
 Indiana & H S.E. spike in tel pole
 Arctic & H S.E. spike in tel pole
 20' W of S.E. cor.
 Colq & H spike in tel pole.

B.M. B. line
 7.1.74 July 21 1882

Δ	+	Hi	-	Elev	B.B.
#	5.067	3.792		-1.275	
BM check		5.31	-1.618	-1.63	
BM# 5.178	6.715	2.235	1.537		
BM# 4.741	9.459	1.997	4.718	4.68	
BM# 3.070	9.504	3.026	6.434		
BM check		3.240	6.264	6.22	
BM# 4.434	11.939	1.983	7.521	7.48	
BM# 5.272	12.413	4.818	7.141		
BM# 4.345	12.542	4.216	8.197	8.21	
BM# 5.614	15.153	3.023	9.539		
BM# 8.695	20.054	3.794	11.359	11.39	
BM check		2.15	17.90	17.68	
BM# 8.110	25.402	2.762	17.292		
BM check		2.140	23.262	23.27	
BM# 10.446	32.814	3.054	22.368		
BM# 5.065	37.074	0.505	32.009	31.95	
BM# 7.253	40.167	4.160	32.914		

Bala & G S.E. Spike in cor. of house.
 Bala & F. NE spike in tel pole 30' N
 and 20' S of corner
 Bala & E. S.E. Spike in S.W. cor. of sign ^{post}

Bala & D S.E. Spike in cor. of sign post.
 Bala & O spike NW cor. of platform
 Bala & B Spike in tel. pole 30' S. of NE cor.
 Bala & A. NE Spike in tel. pole.
 Bala & C NE spike in tel. pole 5' N
 of corner.

Ash & Aretic. SE Pin 6" from B. cor.
 3.5 feet from fence.

Indiana Ash. SW spike in cor. fence
 Columbus Ash & E cor in porch
 State & Ash S.W. spike in cor.

B.M. July 22 1887
H.H. B line

44

	+	HI	-	Elev	BB
BM#	40.167	1.238	39.817		
#	9520	48.437	1.250	38.810	
BM	9381	56.918	0.905	47.532	
BM	1.000	5.228	6.527	50.386	
BM	6 hook		1.201	55.712	55.70
#	9850	65.324	1.439	55.474	
BM			6.665	58.659	58.65
#	8523	71.247	2.400	62.924	
BM			5.303	65.944	
			1.024	70.223	70.255
					.032

Cal. St.

BM#	4.645	16.004		11.359	
BM#	7.110	22.284	0.880	15.174	
BM#	4.655	20.709	6.250	16.054	16.06
BM#			370	17.009	

Wmin & Ash SW spike in post.

Front & Ash SW spike in post

1st Ash NW spike in corner.

2nd Ash SE spike in cor post.

Cal & Ash

Cal & Beech NE spike in
telegraph pole 30' N of cor.

Cal & Cedar NE spike in
telegraph pole 50' N of cor.

Cal & Gate NE spike in
pole 50' N of corner.

20 m. C. line
H. H. July 23 1887

Δ	+	HI	-	Elev	B.B.
BM #	2.703	19.712		17.009	
BM #	9.068	26.872	1.908	17.804	17.43
BM #	7.712	24.592	9.992	16.880	
#	3.172	27.018	0.746	23.846	
BM	check.		6.230	20.768	20.69
BM #	1.399	23.048	5.369	21.649	
BM	check.		5.346	17.708	17.61
BM #	4.422	22.020	5.450	17.598	
BM #	10.774	28.805	3.989	18.051	
#	8.655	36.576	0.884	27.921	
BM			5.380	31.196	
BM	check		5.560	31.016	30.92
#	11.375	47.189	0.762	35.814	
#	8.627	54.995	0.821	46.368	
BM #	10.976	65.081	0.890	54.105	44.86
	check on plug		3+40	Jardin Juniper	
			2.580	52.415	
BM			9.611	55.470	
#	11.862	76.018	0.925	54.156	

45

Calat. & Fir S.W. S. spike in tel. pole.
 Calat. & Grape S. spike in telegraph
 pole near centre of Grape St.
 Calat. & Hawthorn S. spike in est. post.
 Calat. & Hawthorn NE spike tel. pole.
 Calat. & Ivy N.E. S. spike in tel. pole
 Calat. & Ivy N.E. S. spike in NW cor of
 telegraph pole.
 Calat. & Juniper N.E. S. spike in tel. pole.
 Juniper & Ash N.E. S. spike in post
 100 feet N of cor.
 Juniper & India S. spike in tel. pole
 17 E. of Sta 9+40
 Juniper & Columbia S.E. S. iron post
 6" of iron B. cor.

L.B. M. C. line July 20 1897
 H.H. City Sewerage B.P.'s

Δ	+	Hi	-	Elev	BB
		76.018			
BM			3.813	72.205	
#	11.627	86.611	1.034	74.984	
#	9.793	95.480	0.924	85.687	
BM#	11.562	105.707	1.336	99.145	
BM	check		0.170	105.537	105.50
BM#	11.063	115.870	0.900	104.807	
#	11.485	126.545	0.810	115.060	
#	11.731	137.447	0.829	125.716	
BM			11.194	126.259	
#	11.324	147.920	0.865	136.592	
BM	check		8.460	139.460	139.42
#	10.805	157.947	0.778	147.142	
BM	check		1.225	156.722	156.72
BM#	11.851	168.243	1.555	156.392	
#	11.652	179.141	0.754	167.489	
#	11.718	190.066	0.793	178.348	
BM	check		0.220	189.846	189.82
#	7.406	195.872	1.600	188.466	
BM#	9.260	199.064	6.068	189.804	

Juniper & State S.W. Iron pin 1' from corner of block.

Juniper & Union S.W. Iron pin 6" from cor of block.

Juniper & Curlew S.E. Iron pin 2" from plug.

Juniper & Brand S.W. Iron pin six in. from B. cor.

Juniper & A. Butrose S.W. Iron pin 6' from B. cor.

Juniper & Front S.W. Iron pin 6" from B. cor.

Orendenhall
 Hamlin *C. Linn*
 July 25-1887

△	+	HI	-	Elev	BB
		199.069			
#	10.016	207.940	1.240	197.829	
BM	check		5.406	202.434	202.31
BM			3.104	204.736	
#	5.920	210.100	3.660	204.180	
BM	check		3.020	207.050	206.95
BM#	8.145	213.823	3.022	207.078	
#	7.994	222.445	0.772	214.451	
#	0.714	216.237	6.922	215.523	
BM	check		11.908	204.329	204.310
				204.310	
				19	

Jumper & 75th N.E. Iron pin
 6" from cor.

Jumper & 2nd St. S.W. Iron pin
 1' from cor.

Jumper & 3rd.

Creenden hall Trent. St
 Hamlin Sewerage Pipe
 July 26 1882

	Δ	+	HT	-	Elev	BB
BM#	7.951	18.782			10.831	
#	6.040	21.751	9.071		15.711	
BM	6 heels		3.800		17.921	17.569
BM			2.640		19.111	
#	4.605	22.978	3.478		18.273	
BM#	7.513	26.985	3.406		19.472	
#	6.270	32.535	0.720		26.265	
BM	6 heels		5.915		21.070	21.02
BM#	6.535	34.782	4.288		28.247	
BM#	4.834	36.489	2.927		31.855	
BM	6 heels		6.510		28.272	28.22
BM#	6.006	38.426	4.269		32.420	32.39
#	9.945	47.445	0.826		37.600	
BM			7.864		39.581	
#	9.915	55.110	1.760		45.695	
BM	6 heels		5.035		50.055	50.03
BM			7.576		47.585	
			4.719		50.391	50.38
					50.386	
					5	

Front & H S.W. Spike in tel. pole
 Front & G S.E. eq in east porch.
 Front & G S.E. N hinge of hydrant
 Front & F S.W. Iron pin 6 in from corner.
 Front & E N.E. Spike in tel pole.
 Front & D S.W. N hinge of hydrant
 Front & C S.W. Spike in post.
 Front & B N.W. Spike in post.
 Front & A S.W. Spike in post
 Front & A S.W. Spike in post

Mendenhall State St. Sewerage
 Hamlin B. Me. July 27 1897

△	+	HI	-	Elev	RB.
BM#	8.097	15.928		7.231	
BM#	4.178	21.658	1.848	18.940	
BM#	5.392	28.459	3.541	18.117	
BM	check		4.860	16.798	16.91
BM#	3.376	25.455	1.380	22.079	
			3.965	21.490	21.44
BM#	5.800	29.730	2.525	22.930	
BM	check		0.420	25.035	25.01
BM	check		3.600	25.130	25.05
BM#	4.941	29.971	3.700	25.030	
BM#	9.326	36.795	2.502	27.469	
#	4.925	40.588	1.132	35.663	
BM			1.446	39.140	
#	1.715	39.673	2.650	37.969	
BM	check		6.757	32.916	32.914
				32.914	

State & G S.O. Spike six inches
 from corner of porch.

State & F S.W. N. hinge of
 by drain.

State & O S.O. N hinge of
 by drain.

State & I N, O. Spike in tel. pole

State & C S.O. Spike in fence

State & B S.O. Pin 6" from B cor.

State & A S.O. N hinge of by drain.

State & A sh

Mendenhall Indian St. Sewer-
 Hamlin ^{age} ^{B.M.} July 27 1887

	Δ	+	HI	-	Elev	BB
BM	7192		9.396		2204	
#	7.432	13.469	3.359	6.087		
BM			5.626	7.843	7.82	
BM#	5.180	14.485	4.164	9.305	9.29	
BM	check		4.395	10.090	10.09	
BM	5.130	15.643	3.972	10.513		
BM#	6.935	20.541	1.997	13.646		
BM#	check		1.965	14.178	14.16	
BM#	3.140	20.673	3.048	17.533		
BM#	5.710	21.551	4.832	15.841		
BM#	6.880	26.600	1.831	19.720		
BM	check		4.249	22.351	22.36.8	

H.S. India

India & S. N.C. Spike in post
 India & F. S.C. Spike in post

India & C. N.C. Spike in tel pole
 India & S. S.W. ev. in post.

India & C.S.C. Spike in tel pole
 India & B.S.C. Spike in tel pole
 India & A.S.C. Spike in tel pole.
 India & Ash.

Wendenhall 10 line Sewerage
 Hamlin Bms July 29, 1887

Δ	+	HI	-	Elev	B.B.
BM	1.790	9.220		7.43	
#	3.827	8.066	4.981	4.239	
BM#	3.883	5.528	6.021	2.045	
#	5.901	7.529	4.300	1.628	
BM#	5.749	9.670	3.608	3.921	
BM	check		0.78	8.890	9.11
BM#	3.564	11.995	1.029	8.641	^{8.89} 2.2
BM#	7.258	16.412	2.841	9.754	
#	7.513	21.221	2.704	13.708	
BM			5.052	16.169	
BM#	8.245	26.483	2.943	18.238	
BM	check		2.900	18.321	19.55
BM#	6.015	31.063	1.435	25.048	
BM	check		3.76	22.723	22.75
#	5.169	34.327	1.900	29.163	
BM#			3.502	31.025	
BM	check		2.081	28.236	32.27

Initial bench 5th & K.

L & 5th Spike in post 38' N. of
 cor. S.E.

S & 6th S.E. Spike in post.

S & 8th N. & Stake in tel pole

8th & K S.E. N hinge of hydrant
 8th & J S.W. Iron pin from cor

8th & I S.W. N hinge of hydrant

8th & H S.E. N hinge of hydrant.

46 98

2
dz
clad+

each
dz

ro

207.68
261.95

15

195.82
220.00

24.18

One
H
△
BM

BM#

BM#
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BM#

BM
BM#
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BM

BM#
BM

TRAVERSE TABLE FOR TRANSIT BOOK,
From 1° to 90° for a distance of 100.

Degrees.	DEGREES.		¼ DEGREE.		½ DEGREE.		¾ DEGREE.		Degrees.
	Lat.	Dep.	Lat.	Dep.	Lat.	Dep.	Lat.	Dep.	
0			100.00	0.44	100.00	0.87	99.99	1.31	80
1	99.98	1.75	99.98	2.18	99.97	2.62	99.95	3.05	81
2	99.94	3.49	99.92	3.93	99.91	4.36	99.88	4.80	82
3	99.86	5.23	99.84	5.67	99.81	6.10	99.79	6.54	83
4	99.76	6.98	99.73	7.41	99.69	7.85	99.66	8.28	84
5	99.62	8.72	99.58	9.15	99.54	9.58	99.50	10.02	85
6	99.45	10.45	99.41	10.89	99.36	11.32	99.31	11.75	86
7	99.25	12.19	99.20	12.62	99.14	13.05	99.09	13.49	87
8	99.03	13.92	98.97	14.35	98.90	14.78	98.84	15.21	88
9	98.77	15.64	98.70	16.07	98.63	16.50	98.56	16.93	89
10	98.48	17.36	98.40	17.79	98.33	18.22	98.25	18.65	90
11	98.16	19.08	98.08	19.51	97.99	19.94	97.90	20.36	71
12	97.81	20.79	97.72	21.22	97.68	21.64	97.53	22.07	72
13	97.44	22.50	97.34	22.92	97.24	23.34	97.13	23.77	73
14	97.03	24.19	96.92	24.62	96.81	25.04	96.70	25.46	74
15	96.59	25.88	96.48	26.30	96.36	26.72	96.25	27.14	75
16	96.13	27.56	96.00	27.98	95.88	28.40	95.76	28.82	76
17	95.63	29.24	95.50	29.65	95.37	30.07	95.24	30.49	77
18	95.11	30.90	94.97	31.32	94.83	31.73	94.69	32.14	78
19	94.55	32.56	94.41	32.97	94.26	33.38	94.12	33.79	79
20	93.97	34.20	93.82	34.61	93.67	35.02	93.51	35.43	80
21	93.36	35.84	93.20	36.24	93.04	36.65	92.88	37.06	68
22	92.72	37.46	92.55	37.86	92.39	38.27	92.22	38.67	67
23	92.05	39.07	91.88	39.47	91.71	39.87	91.53	40.27	66
24	91.35	40.67	91.18	41.07	91.00	41.47	90.81	41.87	65
25	90.63	42.26	90.45	42.66	90.26	43.05	90.07	43.44	64
26	89.88	43.84	89.69	44.23	89.49	44.62	89.30	45.01	63
27	89.10	45.40	88.90	45.79	88.70	46.17	88.50	46.56	62
28	88.29	46.95	88.09	47.33	87.88	47.72	87.67	48.10	61
29	87.46	48.48	87.25	48.86	87.04	49.24	86.82	49.62	60
30	86.60	50.00	86.38	50.38	86.16	50.75	85.94	51.13	59
31	85.72	51.50	85.49	51.88	85.26	52.25	85.04	52.62	58
32	84.80	52.90	84.57	53.36	84.34	53.73	84.10	54.10	57
33	83.87	54.46	83.63	54.83	83.39	55.19	83.15	55.56	56
34	82.90	55.92	82.66	56.28	82.41	56.64	82.16	57.00	55
35	81.92	57.36	81.66	57.71	81.41	58.07	81.16	58.42	54
36	80.90	58.78	80.64	59.13	80.39	59.48	80.13	59.83	53
37	79.86	60.18	79.60	60.53	79.34	60.88	79.07	61.22	52
38	78.80	61.57	78.53	61.91	78.26	62.25	77.99	62.59	51
39	77.71	62.93	77.44	63.27	77.16	63.61	76.88	63.94	50
40	76.60	64.28	76.32	64.61	76.04	64.94	75.76	65.28	49
41	75.47	65.61	75.18	65.93	74.90	66.26	74.61	66.59	48
42	74.31	66.91	74.02	67.24	73.73	67.56	73.43	67.88	47
43	73.14	68.20	72.84	68.52	72.51	68.84	72.24	69.15	46
44	71.93	69.47	71.63	69.78	71.33	70.09	71.02	70.40	45
45	70.71	70.71							
Degrees.	Dep.	Lat.	Dep.	Lat.	Dep.	Lat.	Dep.	Lat.	Degrees.
	DEGREES.		¼ DEGREE.		½ DEGREE.		¾ DEGREE.		

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Handwritten notes and calculations on the left page of the notebook, including various numbers and mathematical expressions.

Top left: 15.870 , 105.59

Top center: 86.03 , 53.98 , 1.08

Top right: -5.01 , 5.792 , 1.578

Middle left: 7.521 , 1.46 , 58784 , 107.4477 , 3134.097 , 6.358

Middle right: 1.644 , 4115 , 6.22

Bottom left: 4300 , 11.821 , 4675 , 52.41 , 52.14 , 6.9225 , 8.293 , 20.125 , 8.2825

Bottom center: 51.009 , 81.79 , 1.019